AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (original) A system for measuring a thickness of a non-conductive coating on a semi-conductive substrate, said system comprising:

a first conducting plate adapted to be placed in contact with a non-conductive coating on a semi-conductive substrate at a first location;

a second conducting plate adapted to be placed in contact with the non-conductive coating at a second location; and

a capacitance meter electrically connected to the first and second conducting plates, the capacitance meter adapted to measure a capacitance value of the non-conductive coating in combination with the semi-conductive substrate between the first and second conducting plates.

2. (original) The system of Claim 1, wherein the system further comprises a computer based subsystem electrically connected to the capacitance meter, the computer based subsystem adapted to use the measured capacitance value of the coating in combination with the substrate to determine a measured capacitance value of the coating between the first and second conducting plates.

3. (original) The system of Claim 2, wherein the computer based subsystem is further adapted to utilize at least one lookup table to determine the measured capacitance value of the coating.

4. (currently amended) The system of Claim 2, wherein the computer based subsystem **[[if]]** is further adapted to determine a measured thickness of the coating based on the measured capacitance value of the coating.

5. (original) The system of Claim 4, wherein the computer based subsystem is further adapted to utilize at least one lookup table to determine the measured thickness of the coating.

6. (original) The system of Claim 4, wherein the computer based subsystem is further adapted to determine the measured thickness of the coating utilizing the following equation:

$$C = (\varepsilon A)/(2d),$$

wherein C is the measured capacitance value of the coating, ε is the dielectric constant of the coating, A is the sum area of the first and second conducting plates and d is the measured thickness of the coating.

7. (original) The system of Claim 2, wherein the computer based subsystem is further adapted to display the measured thickness of the coating.

8. (original) The system of Claim 1, wherein the system further comprises a stabilizing device adapted to hold the first and second conducting plates in direct and uniform contact with the non-conductive coating.

9. (original) The system of Claim 8, wherein the stabilizing device comprises a bridge structure having a first leg with a first affixing device attached thereto and second leg with a second affixing device attached thereto, the first and second affixing devices adapted to temporarily affix the bridge to a surface of the non-conductive coating.

10. (original) The system of Claim 9, wherein the stabilizing device further comprises a force device disposed between the bridge structure and the first and second conducting plates, the force device adapted to apply a force to the first and second conducting plates that holds the first and second conducting plates in direct and uniform contact with the non-conductive coating.

11. (original) The system of Claim 1, wherein at least one of the first and second conducting plates are constructed of a conformal material adapted to be conformed a contoured substrate.

12. (original) A method for measuring a thickness of a coating on a component of a mobile platform, said method comprising:

placing a first conducting plate in contact with a non-conductive coating on a surface of a semi-conductive component of a mobile platform at a first location, thereby creating a first portion of a capacitor having the non-conductive coating as a dielectric;

placing a second conducting plate in contact with the non-conductive coating on the surface of the semi-conductive component of the mobile platform at a second location, thereby creating a second portion of a capacitor having the non-conductive coating as a dielectric;

measuring a capacitance value of the non-conductive coating in combination with the semi-conductive mobile platform component utilizing a capacitance meter electrically connected to the first and second conducting plates, wherein the non-conductive coating has a first dielectric constant and the semi-conductive mobile platform component has a second dielectric constant; and

determining a measured thickness of the non-conductive coating based on the measured capacitance value of the non-conductive coating in combination with the semi-conductive component.

13. (original) The method of Claim 12, wherein determining the measured thickness of the coating comprises determining a measured capacitance value of the coating based on the measured capacitance value of the coating in combination with the mobile platform component, utilizing a computer based subsystem electrically connected to the capacitance meter.

14. (original) The method of Claim 13, wherein determining the measured capacitance value of the coating comprises utilizing at least one lookup table included in the computer based subsystem to determine a differential value between a predetermined capacitance value of the mobile platform component without the coating and the measured capacitance value of the coating in combination with the mobile platform component.

15. (original) The method of Claim 13, wherein determining the measured thickness of the coating further comprises utilizing the determined measured capacitance value of the coating to determine the measured thickness of the coating.

16. (original) The method of Claim 15, wherein utilizing the measured capacitance value of the coating to determine the measured thickness of the coating comprises utilizing at least one lookup table included in the computer based subsystem to determine the measured thickness of the coating.

17. (original) The method of Claim 15, wherein utilizing the measured capacitance value of the coating to determine the measured thickness of the coating comprises solving for d in the following equation:

$$C = (\varepsilon A)/(2d),$$

wherein C is the determined capacitance value of the coating, ε is a dielectric constant of the coating, A is a sum area of the first and second conducting plates and d is the measured thickness of the coating.

18. (original) The method of Claim 12, wherein placing the first and second conducting plates in contact with the non-conductive coating comprises:

temporarily affixing a stabilizing device to the coating; and

utilizing the stabilizing device to hold the first and second conducting plates in direct and uniform contact with the non-conductive coating.

19. (original) The method of Claim 12, wherein placing the first and second conducting plates in contact with the non-conductive coating comprises conforming at least one of the first and second conducting plates to a contoured substrate.

20. (original) A system for measuring a thickness of a coating on a surface of a mobile platform component, said system comprising:

a first conducting plate adapted to be placed in contact with a non-conductive coating on a surface of semi-conductive mobile platform component at a first location, thereby creating a first portion of a capacitor having the non-conductive coating as a dielectric;

a second conducting plate adapted to be placed in contact with the non-conductive coating on the surface of semi-conductive mobile platform component at a second location, thereby creating a second portion of the capacitor having the non-conductive coating as a dielectric;

a capacitance meter electrically connected to the first and second conducting plates, the capacitance meter adapted to measure a capacitance value of the non-conductive coating in combination with the semi-conductive mobile platform component between the first and second conducting plates, wherein the non-conductive coating has a first dielectric constant and the semi-conductive mobile platform component has a second dielectric constant; and

a computer based subsystem electrically connected to the capacitance meter, the computer based subsystem adapted to use the measured capacitance value of the non-conductive coating in combination with the semi-conductive mobile platform component to determine a measured thickness of the non-conductive coating.

21. (original) The system of Claim 20, wherein the computer based subsystem is further adapted to use the measured capacitance value of the non-conductive coating in combination with the semi-conductive mobile platform component to determine a measured capacitance value of the coating.

22. (original) The system of Claim 21, wherein the computer based subsystem is further adapted to utilize at least one lookup table to determine the measured capacitance value of the coating based on the capacitance value of the non-conductive coating in combination with the semi-conductive mobile platform component.

23. (currently amended) The system of Claim 21, wherein the computer based subsystem **[[if]]** is further adapted to use the measured capacitance value of the coating to determine the measured thickness of the coating.

24. (original) The system of Claim 23, wherein the computer based subsystem is further adapted to utilize at least one lookup table to determine the measured thickness of the coating based on the measured capacitance value of the coating.

25. (original) The system of Claim 23, wherein the computer based subsystem is further adapted to determine the measured thickness of the coating utilizing the following equation:

$$C = (\varepsilon A)/(2d),$$

wherein C is the measured capacitance value of the coating, ε is the dielectric constant of the coating, A is the sum area of the first and second conducting plates and d is the measured thickness of the coating.

26. (original) The system of Claim 20, wherein the system further comprises a stabilizing device adapted to hold the first and second conducting plates in direct and uniform contact with the non-conductive coating.

27. (original) The system of Claim 26, wherein the stabilizing device comprises a bridge structure having a first leg with a first affixing device attached thereto and second leg with a second affixing device attached thereto, the first and second affixing devices adapted to temporarily affix the bridge to a surface of the non-conductive coating.

28. (original) The system of Claim 27, wherein the stabilizing device further comprises a force device disposed between the bridge structure and the first and second conducting plates, the force device adapted to apply a force to the first and second conducting plates that holds the first and second conducting plates in direct and uniform contact with the non-conductive coating.

29. (original) The system of Claim 20, wherein at least one of the first and second conducting plates are constructed of a conformal material adapted to be conformed a contoured substrate.